Dynamics of electric potentials in a migrating cell colony

S. Ruiz López-Loriente,[1] L. Valencia,[1] and J. Rodríguez-Rodríguez[1]

[1] *Universidad Carlos III de Madrid, Avda. Universidad 30, 2811 Leganés, SPAIN*

Cell migration is the most important process during wound healing and it must be very effective, for the cells to know in which way and direction they have to migrate. Cells own different mechanisms, such as endogenous electric fields and mechanical forces, for them to sense and transmit movement signals. Endogenous generated electric fields are found to be one of the most important cues on cell migration. Thus, cell migration can be enhanced by the application of external electric fields. Current work is focused on the study of both cell monolayer impedance characterization and kinematic behavior influenced by induced electric fields. Moreover, a study of the effect of external electric fields on cells seeded on different substrates was also performed. Results have shown an enhancement of cell migration due to the effect that the mechanical properties of the substrates and the applied electric fields induced on them. In order to fully understand the mechanisms by which cells sense and transduce electrical and mechanical signals during migration in wound healing more studies should be performed.